

SPECIFICATION AMENDMENTS

On page 1, insert above line 1, insert--Priority Claim

The present application claims priority on European Patent Application 03257143.2 filed 12 November 2003.--

On page 1, above line 1, insert--Field of the Invention--

Paragraph on line 1 of page 1 has been amended as follows:

– The present invention relates to a method of reducing inflow of rock particles from an earth formation into a wellbore for the production of hydrocarbon fluid. Often the reservoir rock is loosely consolidated, so that it tends to disintegrate and flow into the wellbore under the influence of hydrocarbon fluid flowing through the pore spaces.

On page 1, above line 8, insert--Background of the Invention

Often the reservoir rock is loosely consolidated, so that it tends to disintegrate and flow into the wellbore under the influence of hydrocarbon fluid flowing through the pore spaces.–

On page 1, insert above line 28--Summary of the Invention--

On page 1, delete lines 28 and 29.

On page 2, delete lines 1 and 2.

Paragraph on line 3 of page 2 has been amended as follows:

– In accordance with the The present inventions there is provided include a method of reducing inflow of rock particles from an earth formation into a wellbore for the production of hydrocarbon fluid, the method comprising creating a zone of reduced compressive stiffness around the wellbore by removing rock material from the wall of the wellbore, wherein the step of removing rock material from the wellbore wall comprises creating a slot in the wellbore wall characterised in that wherein the slot is wedge shaped in a cross-sectional plane of the wellbore, and that the width of the slot decreases in radially outward direction.–

On page 2, delete lines 14-33.

On page 3, above line 26, insert--Brief Description of the Drawings--

On page 4, above line 13, insert--Detailed Description of the Invention--

Paragraph on line 20 of page 7 has been amended as follows:

-- ~~An important effect of the slots Slots 16, 32, 42 or the rows of perforations 24, is the formation of form~~ an annular zone 60 of reduced compressive stiffness around the wellbore 1, 30, 40. The thickness of the zone 60 is about equal to the depth of the slots 16, 32, 42 or the perforations of the rows 24. The compressive stiffness of the zone 60 is reduced because the slots 16, 32, 42 form open spaces between sections of rock 62, which open spaces allow some circumferential compression of the annular zone 60 under the effect of the governing formation stresses. As a result the stresses in the annular zone 60 sections of rock material 62 between the slots 16, 32, 42 are relieved somewhat. By the reduction of the stresses in the annular zone 60, the stresses in the rock material outside the annular zone 60 increase somewhat as schematically illustrated in Fig. 6. However, the stresses outside the annular zone 60 are relatively low so that a limited increase of these stresses has no adverse effects.--

Paragraph on line 6 of page 8 has been amended as follows:

-- With the method of some embodiments of the invention it is achieved that the relatively high shear stresses near the wellbore wall are relaxed, so that the tendency of local failure of rock material near the wellbore wall is reduced. It will be appreciated that such reduced tendency of failure of rock material near the wellbore wall leads to a desired reduction of inflow of rock particles (sand particles) into the wellbore during the production of hydrocarbon fluid from the earth formation zone.--

On page 8, after line 28, please insert the following paragraphs:

-- It is thereby achieved that stress concentrations in the rock material at, or adjacent to, the wellbore wall are relieved. Such stress concentrations are due to the presence of the wellbore in the rock formation, whereby the originally undisturbed stresses in the rock formation have become disturbed. The disturbed stresses include high shear

stresses in the near wellbore region, which often lead to local failure of the rock formation thereby inducing sand production. By reducing the compressive stiffness in a zone around the wellbore, the relatively high shear stresses in the near-wellbore region are relieved so that the risk of local failure of the rock formation is reduced.

It is preferred that the step of removing rock material from the wellbore wall is carried out in an open-hole section of the wellbore, that is to say, an uncased section of the wellbore.

Suitably the step of removing rock material from the wellbore wall comprises removing rock material from at least one elongate section of the wellbore wall.

Preferably each elongate section has a longitudinal axis extending in axial direction of the wellbore.

It is to be understood that the elongate section does not need to extend parallel to the longitudinal axis of the wellbore, but can, for example, extend in the form of a helix along the wellbore wall.

Generally the earth formation surrounding the wellbore is subjected to stresses including first, second and third principal stresses. It is preferred that said elongate section extends radially in a direction substantially perpendicular to a selected one of said principal stresses.

Suitably said elongate section extends radially in a direction substantially perpendicular to the largest a selected one of said principal stresses.

In case the wellbore extends substantially vertically, it is preferred that said elongate section extends radially in a direction substantially perpendicular to the largest horizontal principal stress.

In case the wellbore extends substantially horizontally, it is preferred that said elongate section extends radially in a direction substantially perpendicular to the vertical principal stress.

The slots or perforations can be open (i.e. filled with gas or liquid) or filled with a flexible material.

On page 9, above line 1, insert --We claim:--